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Slide Number 1

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NETWORK

DESIGN

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Previously there have been two phases in the design of a network

- **Department** Design

- **Interconnect** Design

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Department

Previously departments

- Funded their networks

- Designed their Networks

- Installed their networks

- Managed their networks
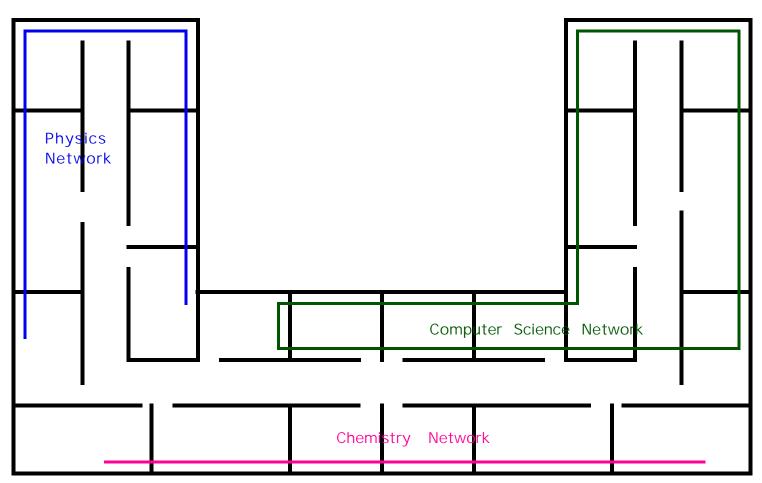
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Department

Each Department developed a network
that suited their needs.

These networks were developed to serve the
 immediate need with no consideration for

- Expansion needs
- Interconnection with others
- Standardization
- Compatibility with Future Standards

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Department

Physics
Network

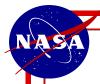Computer Science Network

Chemistry Network

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Department

These networks were of two Types

- IBM Token Ring

- 10Mbs Ethernet

These were of various types
and supported various protocols
TCP/IP, DECnet, IPX, AppleTalk

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Interconnect

Once several departmental networks had been installed the next step was to interconnect them.

Because there was no standardization this was difficult.

In most cases full interoperability was not possible.
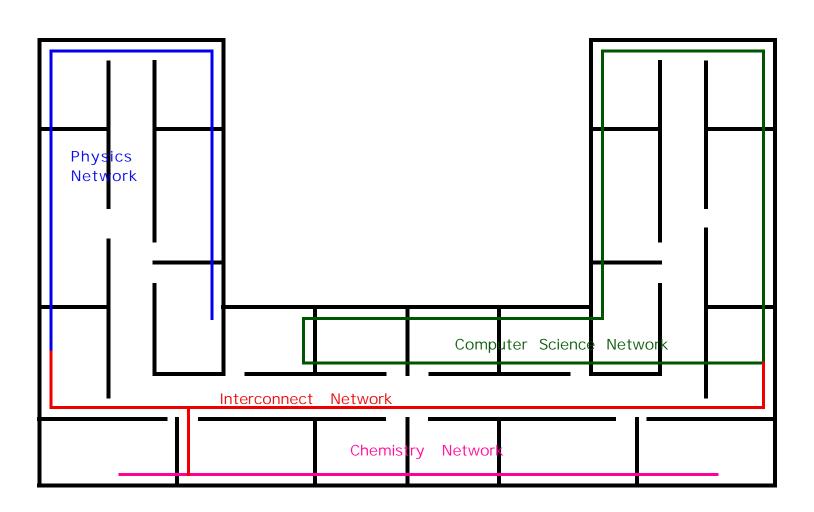
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Interconnect

The result was a network

- With multiple standards

- Composed of semi compatible   sub nets

- Without full functionality

- Based on older technologies

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Interconnect

Physics
Network

Computer Science Network

Interconnect   Network

Chemistry   Network

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Network Consists of

CABLE PLANT

NETWORK EQUIPMENT

WORKSTATIONS AND PRINTERS

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CABLE PLANT

**The cable plant is the network cabling
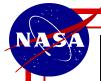and associated patch panels and connectors.**

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Cable Plant is the most:

- **expensive single part of your network**

- **failure prone part of your network**

- **likely place for reducing cost**

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A good cable plant alone will not

make a good network.

HOWEVER,

<u>the easiest way to make a bad network</u>

<u>is with a poor cable plant</u>

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The few dollars saved by cheap

Cable, Connectors and Shoddy Installation

Will cost many times more in

Maintenance and Down Time.

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PLAN FOR THE

FUTURE

design your cable plant with

tomorrows network in mind

" *INSTALL CABLE ONCE*"

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Todays network is based on

10 megabit per second technology.

With a little care in the design and

Minimal Additional Cost

we can support tomorrows

100 megabit per second technology.

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This can be achieved by installing

a CAT-5 Certified cabling System.

CAT-5 COMPLIANT

is _NOT_

CAT-5 CERTIFIED

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Cat-5 is a EIA/TIA proposed addition

for the EIA/TIA 568 standard

It is a standard for 100 MHz

Unshielded Twisted Pair Cable

and connectors

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All associated hardware must also be CAT-5

- **Connectors**

- **Patch Panels**

- **Wall Jacks**

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Obviously it will take more than quality components to make a superior network.

A Structured cabling system is required to take advantage of today's requirements and provide service to emerging technologies.

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In a structured cabling system each device is wired to a central point using a star topology.

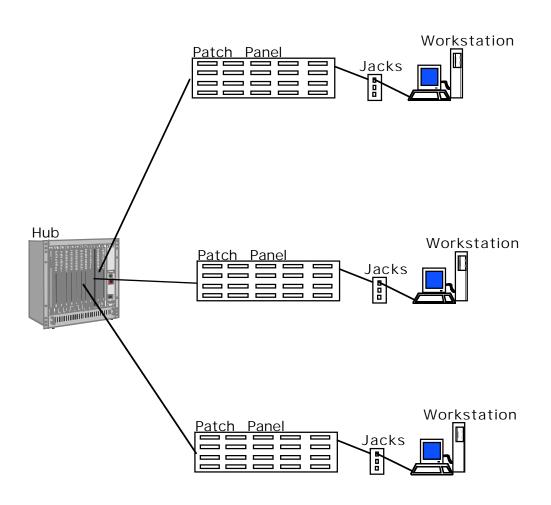This facilitates system interconnection and allows for simple expansion and reconfiguration.

The simplicity of a generic cable structure is innately superior to many separate   and different cable systems.

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Star Topology Diagram

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A Cat-5 star configuration offers these advantages

- **Network Scalability**

- **Standardization**

- **Services**

- **Network Management and Reliability**

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Network Scalability

- **Performance as required**

- **Design Flexibility**

- **Protocol and application independent**

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Standardization

- **Compliant with industry standards**

- **Identical Physical Network Interfaces**

- **Standardized Network Equipment**

- **Interoperability**

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Services

- **Installation**

- **Troubleshooting**

- **Maintenance**

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Network Management and Reliability

- Fault Management

- Performance Management

- Configuration Management

- Security Management

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General Strategies

- **Always use wall mounted outlet boxes**

- **Use duct for all cable runs**

- **Mark all cables at both ends**

- **Have spare cable drops**
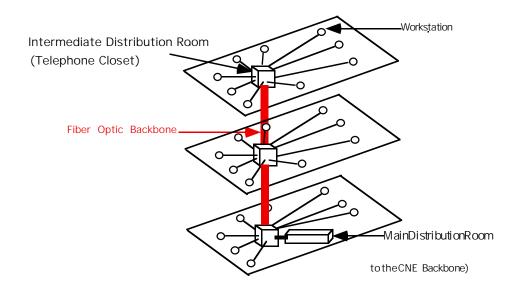
- **Neatness Counts**

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**For cable runs too long for cat-5
such as between floors and buildings
use fiber optic cables.**

**Fiber Optic cable will support any
transmission rate that Cat-5 will
handle.**

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Workstation

Intermediate Distribution Room
(Telephone Closet)

Fiber Optic Backbone

MainDistributionRoom

to the CNE Backbone)

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**Careful construction of your
Cable Plant will support any**

**NETWORK EQUIPMENT
And
WORKSTATIONS AND PRINTERS**

**that you have presently and into the
next generation of networks**

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